REMARKS

Claims 5-8 were pending in the application. Claims 5-8 were rejected. Claim 5 has been amended to include the limitations of former claim 7. Claim 7 has been canceled. Claim 8 has been amended. None of these amendments to the claims introduce new subject matter. Claim 5 is supported at page 3, lines 10-18 and page 4, line 21 to page 5, line 2 of the specification. Claim 8 is supported at page 3, lines 10-18 of the specification.

The amendment to the specification does not introduce new matter. The amendment is supported by Figure 1 and by the description at page 4, line 21 through page 5, line 2, which describes that the substantially common joint corresponds with the centre axis.

35 USC § 112

Claims 5-8 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter.

Claims 5 and 8 have been amended to distinctly claim the subject matter. In consequence of these amendments, the Examiner is requested to reconsider and withdraw the rejections.

35 USC § 102

Claims 5-8 were rejected under 35 U.S. C. 102(b) as being anticipated by GB 1127514. The rejection is traversed.

In order to provide a prima facie showing of anticipation, it is incumbent on the Examiner to provide evidence that the prior art teaches each of the limitations of the claimed invention. The Examiner has not done this. In particular, the Examiner stated that the British reference teaches: "wherein the cross sectional area of the rotational element in the flow direction is insignificant as compared with the flow area of the axial cyclone." This is merely a restatement of previously presented claim 8, without any indication as to where to find this teaching in the prior art reference. In fact, Applicant finds no evidence this teaching exists anywhere in the prior art publication. Thus the Examiner's rejection of claim 8 was not supported and there has been no prima facie showing of anticipation.

Claim 5 presently claims an axial cyclone that has a rotational element configured so as to substantially avoid reducing the cross-sectional flow area of the axial cyclone. This is accomplished with axial vanes projecting from a substantially common center joint that corresponds with the center axis. GB 1127514 does not teach an axial cyclone that meets these specifications. Instead, GB 1127514 teaches a cyclone separator that has vanes

attached to a central ring (page 1, lines 57-67), wherein the ring is arranged on a tube (page 2, lines 43-46), and this collection of elements takes up substantial space inside the tapering section or inside the inlet pipe into which it locates (Figures 1, 2 and 3). Thus, this collection of elements is not configured so as to substantially avoid reducing the cross-sectional flow area of the cyclone separator and no teaching suggests any embodiment that would avoid reducing the cross-sectional flow area of the cyclone separator. For this reason, it is asserted that the claims are novel over the prior art. Applicant respectfully requests that the rejection be reconsidered and withdrawn.

35 USC § 103

Claims 5-8 were rejected under 35 USC § 103(a) as being unpatentable over Bowen (US 2,115,326) taken together with GB 1,127,514. Applicant traverses the rejection.

The Examiner conceded that Bowen teaches a venturi wherein the vanes are located in the intake pipe 10 rather than in a conical transitional tube, as recited in the present claims. The Examiner attempted to cure the defect by combining Bowen with the teachings of the British reference, basing the motivation for the combination on the teaching of the British reference that placement of the rotational element within the transitional part permits the maximum permitted tangential velocity to be attained even with a very small part flow of gas (page 1, lines 68-74 of GB 1,127,514). However, this combination of teachings nonetheless fails to provide any teaching, as in the currently recited claims, that the cyclone has a rotational element configured so as to substantially avoid reducing the cross-sectional flow area of the axial cyclone. The Examiner, on page 5 of the office action stated that Bowen teaches that the cross sectional area of the rotational element in the flow direction is insignificant as compared with the flow area of the axial cyclone. However, the Examiner failed to show any evidence as to where this is taught in Bowen and Applicant fails to see any such teaching. Applicant asserts that, as in the case above, this is merely a restatement of previously presented claim 8 and no evidence of this statement exists anywhere in the Bowen patent. In view of the fact that neither Bowen nor the British reference teach a rotational element configured so as to substantially avoid reducing the cross-sectional flow area of the cyclone separator, the combination does not teach the presently claimed invention. Thus the claims are patentable over the prior art.

Even further, the Examiner suggested that the rotational element of Bowen be placed within the transitional part, but it is clear from Bowen, Figure 1, that the vanes 11 would not

fit in the conical transitional part, because the blades are indicated to extend the entire diameter of the input tube and therefore would not fit within the reduced diameter of the conical transitional part. Thus the modification proposed by the Examiner is unworkable and, as such, does not render the claimed invention unpatentable.

Still further, the patent case law provides that if the proposed combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP 2143.01, VI.; *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Bowen teaches that the dust collector is an improved form of mechanism for separating dust from air, distinguished from the prior mechanisms in that it utilizes a straight or uni-directional flow rather than a reversal or non-unidirectional flow (page 1, lines 1-10). In contrast, the British reference teaches constructing a rotational element in the conical transitional part in a manner that allows displacement of the rotational element out of its seating, thus to allow non-rotating gas to pass outside the guide vane ring and rotating gas to pass in the interior. (GB 1,127,514 at page 1, line 68 to page 2, line 3). This modification, which allows a non-unidirectional flow of gas, would change the principle of operation which Bowen teaches is the improvement. Thus, the combined teachings do not render the claimed invention obvious.

In view of the foregoing, Applicants submit that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should he believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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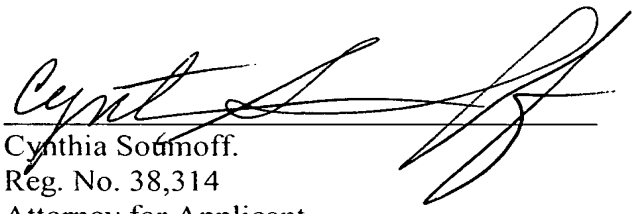

Cynthia Soumoff.
Reg. No. 38,314
Attorney for Applicant

MATHEWS, SHEPHERD, McKAY & BRUNEAU, P.A.
29 Thanet Road, Suite 201
Princeton, NJ 08540
Tel: 609 924 8555
Fax: 609 924 3036